the remarkable outburst of public opinion, it may still be possible to get its incidence modified. Let us consider what it means.

Fortunately, so far as we understand, it does not mean anything more than the closing of the galleries to the public. The ground alleged for this is not greater safety (a matter already attended to); it is in the main a question of economy and the turning of some of the staff on to more urgent work. But, as was well pointed out in a letter to Saturday's *Times* signed by "A Biological F.R.S.," the curatorial work must of necessity go on, some office staff must be kept up, and accredited students, many of whom are engaged on actual war-work, will presumably be admitted. The saving effected, whether considered absolutely or in relation to the total expenditure of ordinary times, is therefore small; the Government estimate is £50,000. In the case of the Natural History Museum, the largest of those with which our readers are chiefly concerned, it would seem possible to dispense with about sixteen commissionaires, two lavatory attendants, three or four cleaners, and perhaps as many police. There are, we believe, a very few employees still available for military service, and awaiting their call. For the rest, the staff cannot, consistently with the safety of the collections, be much further depleted. The museum estimates have already been enormously reduced, and any additional saving would be quite trivial in proportion. Not that the actual money will be saved, for the Government could not cast its employees adrift, but the labour can be directed to other purposes. This does not mean that two dozen stalwart men are set free to fight their country's battles, or even, for the most part, to make munitions. Perhaps some of these candidates for pensions are capable of light horticultural or clerical work, in any case of work for which they have not been trained.

Now is this really worth while? Here is a great building, which with its vast exhibited collections alone has been appraised at a million pounds, about to be closed to the public for the sake of so trivial a saving. Here is the centre of our Empire, thronged with its citizens from near and far, and they are to be precluded from seeing the gathered scientific (and many of the artistic) treasures of their nation. Here are our soldiers seeking refreshment for their minds deadened by the din of battle, and they are to be turned out to the public-house, the revue girl, and Charlie Chaplin. On grounds of pure economy we venture to predict that as much money will be wasted to the nation by this step as will ever be gained by it. Then there are the children, whose school-hours in many cases are shortened, whose teachers have obeyed other calls—they will no longer be able to have recourse to the museum which they are gradually learning to love; their pleasures must again be the pleasures of mean streets. As for the public with some leaning to nature or to art, those who spend a hard-earned half-holiday in gaining some useful knowledge, the public whom we have been trying to lead to a better appreciation of science—what will they think when they see that the first Government establishments to be closed are those devoted to the highest learning and the noblest forms of art? And we, what are we to think of a responsible Minister who can describe the museums as merely "places of pleasant resort"?

The truth is, the Government has been badgered to "give the country a lead" in this matter of economy; and at last it has led—along the line of least resistance. It is not because these are the departments in which anyone has ever hinted at waste; those who never have enough to spend are not likely to waste it. It is merely that the easy but conspicuous action of closing the museums may convince people that the Government "means business." Sensible folk here will soon see that as a business proposition there is nothing in it, and across the Channel, where they are trying to reopen such museums as had perforce to be closed, it will certainly not count as *un beau geste*.

NOTES.

ONE of the effects of the war has been to bring home more forcibly to the general public the part played by science in the growth of Germany's greatness as a nation. Several articles have already appeared in the reviews emphasising this, and the January number of the *English Review* contains a short sketch by Mr. H. L. Heathcote of the development of Germany's chemical industry. This will help to make better known the principles of action underlying Germany's success, in the past, in capturing so large a share of the world's trade. The growth of the industries of porcelain, glass, sugar, cyanide, and of acids and alkalis, is briefly described, and a short account is given of the inception of new industries, such as those of the incandescent mantle, the metal filament lamp, and the fixation of atmospheric nitrogen. In a sketch of the development of the dye-stuff industry, it is pointed out that no amount of baseness in her conduct of war will ever quite eclipse, from the chemists of all nationalities, the greatness of Germany's achievements in organic chemistry, the most difficult of all chemical work. "State-aided chemical industry runs like a vein of gold through the statecraft of Germany, and if ever we learn what Kultur means we shall find that German chemical industry is its vital part." That the industry can be used in an almost unique way to assail the wealth of other nations is proved beyond question by past facts. It remains to be seen how far we, in the future, will profit as a nation from the most important lesson the war has to teach—that national greatness and even national security depend primarily on the degree to which science is encouraged and fostered by the State.

THE threatened prohibition by Sweden of the exportation of wood pulps awakens political interest in an important branch of our cellulose industries. The papermaking industry of Great Britain is chiefly dependent upon imported raw materials, of which about 80 per cent. are the wood pulps. In evidence of the growth of the industry, as of its collateral dependence upon exotic supplies, the importation of these wood pulp shows a tenfold increase for the period of 1887 to

1915—*i.e.* from 500,000*l.* to 5,000,000*l.* The values of total imports for 1915 are above six millions sterling, which includes esparto grass (700,000*l.*), rags and rag pulps, and miscellaneous raw materials. As to the distribution of the sources of supply of the wood pulps, a large part of the total—60 to 70 per cent.—is derived from Scandinavia, Norway sending a larger proportion of "mechanical" pulp, which is the basis of our newspapers, and Sweden the larger proportion of chemical pulp, used in higher class printings and also writings. The chemical pulps of the American continent, *i.e.* including Canada, are little exported, but a fairly large amount of "mechanical" pulp, that is, ground wood pulp, is obtained from Canada, and some from Newfoundland. Our dependence upon Scandinavia is obviously reciprocal; their wood-pulp industry, which is now a very important means of exploitation of their pine forests, is certainly of primary importance to them. The general conclusion of specialists is that Sweden cannot afford to enforce any such prohibition. It is probably a card played in the game of *haute politique,* and the solution of the matter is to be expected in some form of licence to export, similar to our licences in the case of sulphur and other products ranking directly or indirectly as "munitions."

ON Thursday next, February 3, Prof. W. H. Bragg will deliver before the Chemical Society his lecture entitled "The Recent Work on X-Rays and Crystals and its Bearing on Chemistry."

AT the annual general meeting of the Royal Meteorological Society held on January 19 the Symons Memorial gold medal, which is awarded biennially for distinguished work in connection with meteorological science, was presented for transmission to Dr. C. A. Angot, Bureau Central Météorologique de France.

AT a meeting of the council of the Royal Society of Arts on Monday, January 24, the society's Albert medal was presented to Sir J. J. Thomson, "for his researches in chemistry and physics and their application to the advancement of arts, manufactures, and commerce." The medal was founded in 1863 as a memorial of H.R.H. the Prince Consort, and is awarded annually "for distinguished merit in promoting arts, manufactures, and commerce."

IN order to secure the integrity of the estate of the Zoological Station at Naples, and to provide that its scientific function shall not be interrupted, the Royal Italian Government has appointed a committee, of which Prof. F. S. Monticelli is president, for the temporary and extraordinary administration of the Zoological Station. The committee will endeavour to provide the station with financial means for the development of its activities, particularly the fulfilment of its obligations towards the table-occupants. All communcations—financial and scientific—which may concern the station should be sent to Prof. Monticelli.

IN view of the uncertainty as to the sufficiency of the supplies of sulphate of ammonia to meet the home demands during the next few months, it has been decided, on the recommendation of the Fertilisers' Committee, with the approval of the President of the Board of Agriculture and Fisheries and the President of the Board of Trade, to suspend for the present the issue of licences for the export of sulphate of ammonia. Under normal conditions it is well known that the production of sulphate of ammonia considerably exceeds home requirements, but Lord Selborne confidently hopes that farmers will this year greatly increase their demands for fertilisers of all descriptions so as to stimulate so far as practicable the production from the land, and thus reduce the importation of foodstuffs.

WE referred in a leading article on December 23 to the question of an adequate supply of nitrates for agricultural and other purposes, and we commended it to one of the scientific committees which have been established since the outbreak of war. What is mainly wanted is a careful consideration of all available facts, so that a precise statement may be made of the possibilities of the synthetic production of nitrates in this country as a commercial enterprise. The subject is one that intimately concerns the Board of Agriculture; and it seemed to us that it could be considered appropriately by the Departmental Committee appointed by the President of the Board to make arrangements with a view to the maintenance, so far as possible, of adequate supplies of fertilisers for the use of farmers in the United Kingdom. We are glad to see, therefore, that the omission of a chemist from this committee, to which we directed attention in our article, has now been rectified. It has just been announced that the President of the Board has appointed Sir James J. Dobbie, F.R.S., Government Chemist, and Mr. J. R. Campbell, of the Department of Agriculture and Technical Instruction for Ireland, additional members of the committee. Mr. H. Chambers has been appointed secretary to the committee *vice* Mr. H. D. Vigor, resigned.

WE learn from the *Chemist and Druggist* of the death, at seventy-five years of age, of Dr. R. C. Engel, professor of chemistry at the Ecole Centrale des Arts et Manufactures, Paris, and a corresponding member of the Academy of Medicine.

THE death is announced, at the age of sixty-nine years, of Mr. H. M. O'Kelly, formerly superintendent of Government telegraphs in India. He joined the Indian Telegraph Department in 1866, was appointed superintendent in 1886, and retired in 1898.

WE regret to announce that in the list of deaths due to the loss of the *Persia* is included the name of Mr. Robert Vane Russell, of the Indian Civil Service. Mr. Russell joined the service in 1893, and at the time of his death had reached the rank of Deputy Commissioner in the Central Provinces. His ability, powers of work, and knowledge of the people marked him out for early distinction, and in 1901 he conducted the census of the province and wrote a valuable report. After the completion of the census he was engaged on the revision of the series of district gazetteers, of some of which he was sole author, and all were improved by his wide knowledge of the country. But his most important work was the ethnographical survey of the province, to which his later years were devoted. He carried on this work with unfailing energy, in spite of the fact that a painful disease compelled him to be almost entirely a recluse. He published as the preliminary studies of this work a series of monographs on castes, which are full of interest, particularly those devoted to the little-known forest tribes. It is a melancholy satisfaction to know that before he started on his last fatal voyage he was able to complete this great work on the "Tribes and Castes of the Central Provinces of India," which is announced for early publication by Messrs. Macmillan and Co., Ltd. By his early death the Indian Civil Service loses an officer of exceptional ability, and anthropology an energetic field worker and a competent authority on the general questions of ethnology, comparative religion, and folklore.

DR. REGINALD KOETTLITZ and his wife have died from dysentery at Somerset, South Africa, where Dr. Koettlitz was in practice. Born in 1861, educated at Dover College and Guy's Hospital, Dr. Koettlitz settled in a country practice in England, where he remained eight years, until he joined the Jackson-Harmsworth Polar Expedition in 1894. He remained three years continuously in Franz Josef Land, for he refused to return home when he had the opportunity, and leave the expedition without a medical officer. Dr. Koettlitz's geological researches in Franz Josef Land were most important and carried out under very adverse conditions. In 1898 he joined Mr. Weld Blundell when the latter accompanied Captain Harrington to Addis Abbeba, on his appointment to the court of the Emperor of Abyssinia. This entailed a journey through Somaliland and south Abyssinia to the Berta country and the Blue Nile, and home by the Sudan and Egypt. Later Dr. Koettlitz travelled in Brazil, and in 1902 joined the late Captain Scott as senior medical officer of the *Discovery*. He served throughout that expedition, and did much useful work. The Koettlitz Glacier remains as a memorial to his enthusiasm for travel and scientific research, and will keep alive the memory of his kindly and unselfish nature.

BY the death of Lieut William Inchley, of the 2nd Duke of Wellington's Regiment, under shell fire in France, on December 19, 1915, a scientific career of great activity and high promise was cut short at the age of thirty-two years. On leaving school, Lieut. Inchley attended the engineering course at University College, Nottingham, and graduated B.Sc. (Engineering) with honours in the University of London. He was a brilliant student. In his second year at college he gained first prize and silver medal of the City and Guilds of London Institute in mechanical engineering, and in the next year their bronze medal and prize in electrical engineering. He was apprenticed to Messrs. R. Hornsby and Sons, Ltd., Grantham, and engaged on the design, construction, and testing of internal-combustion engines and steam boilers, and for two years acted as technical assistant to this firm. As a graduate of the Institution of Mechanical Engineers he gained a prize for a paper on "Steam Engine and Boiler Trials." From January, 1907, he was lecturer in mechanical and electrical engineering at University College, Nottingham. His paper on "The Calorific Value of Solid and Liquid Fuels" gives the results of a research, using the latest form of Mahler-Cook bomb calorimeter. He also recalculated Mahler's figures, and deduced simple empirical formulæ for the heating value of fuels which agree more closely with the values obtained by the bomb calorimeter than those given either by Dulong or Mahler. Lieut. Inchley wrote several books on engineering; his "Theory of Heat Engines" gives in a concise form thermodynamic and mechanical principles with many numerical examples. His book on "Steam Boilers" avoids advanced mathematics, even when dealing with heat transmission. He was also joint-author of "Elementary Applied Mechanics." All who were associated with him in his life-work will long cherish the memory of his devotion to duty. His death is not only a severe loss to his wife and three young children, but also to University College, Nottingham, and his country.

WE learn with regret of the death, in his seventy-seventh year, of Prof. Paul Sorauer, of the University of Berlin. He early won recognition by his "Beiträge zur Keimungsgeschichte der Kartoffelknolle," published in 1868. Six years later appeared the "Handbuch der Pflanzenkrankheiten," written whilst Sorauer was director of the Experimental Station for Plant Physiology at the Imperial Cider Institute of Proskau. This work, which was the first comprehensive presentation of the rapidly growing science of plant pathology, immediately raised the author to a leading position. A new edition, twelve years later, is noteworthy for the author's acceptance of the then heretical doctrine of the importance of bacteria as causal agents of disease in plants. The last edition, completed in 1911, must remain for many years the most authoritative exposition of this subject, and we are glad to note that it is being rendered accessible to English readers. In the meantime appeared many other of his valuable works dealing with various aspects of plant pathology, and the eminently readable "Populäre Pflanzenphysiologie," which has since been translated into English by Weiss. In 1891, the *Zeitschrift fur Pflanzenkrankheiten* was founded under the auspices of the "Internationalen Phytopathologischen Kommission," and Sorauer became editor, a position he occupied until his death. During that time he contributed more than thirty articles embodying original research to this publication alone, which latter under his guidance remained the leading phytopathological journal. Whilst it is by his "Handbuch," the successive editions of which mark epochs in the history of the study of disease in plants, that Sorauer will live, his enthusiasm and untiring energy in all international phytopathological activities are worthy of the fullest recognition, and have had a predominating influence in what has been achieved to that end.

THE *Scotia*, which was the vessel that carried the Scottish National Antarctic Expedition to the south polar regions, under the command of Dr. W. S. Bruce, has been burnt in the Bristol Channel, and has been run ashore at Sully. It was hoped at the end of the expedition that the *Scotia* might be further endowed and handed over to the universities of Scotland as a well-fitted oceanographical ship, but this was not to be, and she fell to the hammer as a whaler. Later, however, she was chartered by the Board of Trade as the most suitable vessel on which to carry out ice observation, meteorology, and oceanography in the North Atlantic Ocean after the wreck of the *Titanic*. The results obtained during this voyage in 1913 have been published by the Board of Trade in two volumes.

THE Midlands earthquake of January 14 proves to have been felt much more widely than was at first supposed. Though less strong than several other British earthquakes of the last quarter of a century, it was perceived by a large number of persons on the first and second floors of houses at a great distance from the centre. The disturbed area includes all England, with the exception of the counties of Northumberland and Durham, the northern half of Cumberland, and the southern counties bounded by a line drawn from Bridgwater in Somerset, by Salisbury, and Guildford, to the mouth of the Thames. It thus includes about 45,000 square miles. From a first rough analysis of the accounts received by him, Dr. Davison concludes that the centre of the innermost isoseismal line was not far from Stone, in Staffordshire. The western boundary of the disturbed area, however is somewhat uncertain, and Dr. Davison (whose address is 16 Manor Road, Birmingham) would be very glad to receive notices of the earthquake from any part of Wales. He is also anxious to obtain many more observations from the central area, especially from the district within twenty or thirty miles of Stone, and would send forms to anyone able and willing to supply the information desired. We have also received a request from Mr. J. J. Shaw (Sunnyside, West Bromwich), secretary of the Seismological Committee of the British Association, for information with reference to the time of occurrence and the nature and intensity of the shock.

MR. L. MACLENNAN MANN has issued an interesting pamphlet on archaic sculpturings in which he proposes a new explanation of the mysterious cup-markings. Plotting them on sheets, he believes that he has discovered that they assume well-defined geometrical forms. The north and south line often runs through one centre, and through another centre runs another north and south line diverging from the first by two to four degrees. Up to the present his survey seems to have been practically confined to the districts of Dumfries and Galloway. With this theory in the minds of inquirers, it is desirable that a wider examination of these sculpturings in other localities should be prosecuted.

THE number of birds new to the British list is steadily increasing, though it is probable that many now recognised for the first time have frequently occurred on our shores, but have escaped detection. The vigilance of our ornithologists is greater than it was, and their powers of discrimination are keener. Hence it is now possible to distinguish not only between our own sedentary species and the Continental races thereof, which more or less frequently visit us, but also between different Continental races of species which visit us, apparently, only on rare occasions. No fewer than six species new to the British list are described in the *British Birds* magazine for January. The value of such records would surely be materially increased if some attempt were made to discover the prevailing weather conditions just before and during each of these recorded visitations.

FOR some time past a correspondence has been carried on in the daily Press as to the fate of the house-fly and the bluebottle, or blow-fly, in the autumn. Do they die, leaving pupæ to continue the race, or do they hibernate, and, reappearing in the spring, produce new generations of larvæ? The latter view is advocated by the non-experts, some of whom claim to have found hibernating individuals of both the species in question. It would seem, however, that but little trust can be placed on their evidence, for though numerous consignments of supposed hibernating individuals of these species have been sent to the British Museum of Natural History, not one contained either house-flies or bluebottles. In one case more than 200 supposed house-flies were sent, but on examination about 80 per cent proved to be cluster-flies (*Pollenia rudis*); there was not a single house-fly among them. The fact is not generally known that there are two or three distinct species of fly which closely resemble the house-fly, and these actually do hibernate, choosing our houses for that purpose, hence the confusion that has arisen.

AT the monthly general meeting of the Zoological Society, held on January 19, Prof. Lucien Cuénot, Dr. Clementi Onelli, and Count Mario Peracea were elected corresponding members, and Prof. Eli Metchnikoff a foreign member of the society. The additions to the menagerie numbered 107, including three species new to the collection: a Salt Desert cat (*Felis salinarum*), two sand hamsters (*Cricetulus griseus*), and an Allemand's Grison (*Grison allemandi*). Though the number of visitors for the year 1915 showed an increase of 3520 over the number admitted during 1914, the receipts for admission at the gates showed a decrease of 1283*l.*, as compared with the previous year. The total number of visitors during 1915 amounted to 1,058,728. In normal times this decrease in the receipts might well cause anxiety; as it is, these figures rather afford an occasion for congratulation. Far otherwise is it with similar institutions among those now at enmity with us. In Budapest we learn that the lions are now fed on half rations, which are partly furnished by the slaughter of the less valuable examples of goats and sheep. The seals have had to be killed for lack of fish, and a similar fate has overtaken the polar bears, for the shooting of which the director opened a competition, by way of raising a little ready cash! The herbivorous animals are in no better case, for the shortage of hay is so great that the deficit has to be made good by substituting wild chestnuts.

THE Geological Survey of New Zealand is making progress with well-illustrated descriptions of the fossils of that colony, which have long been desired for comparison with the corresponding fossils of other regions in the southern hemisphere. In Palæontological Bulletin No. 3, just received, Mr. H. Suter continues his revision of Hutton's type specimens of Tertiary Mollusca.

The last number of the *Revista* of the National University of Cordoba (Argentine Republic) deals chiefly with subjects of medical and historical interest. In one article, however, Prof. Angel Gallardo refers to the richness of the collections in different institutions in the city, and urges the importance of the foundation of a Provincial Museum, with facilities for original research.

The *National Geographic Magazine* for November, 1915 (vol. xxviii., No. 5) maintains its reputation for well-illustrated articles. The greater part of the issue is devoted to a general descriptive article on France, with more than one hundred illustrations, by Mr. A. S. Riggs. Many of the pictures are excellent, and most are quite new. A short article on the Citizen Army of Switzerland, with some pictures of the army amid the alpine snows, completes the number, except for sixteen colour photographs of miscellaneous geographical subjects illustrating, in the main, types of European peasants.

Mr. P. W. Stuart-Menteath is well known through his geological studies in the Pyrenees, which have now extended over forty years, and it is highly probable that in many points of detail he can correct the maps and sections of those who have made sweeping surveys of the chain. The twelfth part of his descriptions of the "Gisements métallifères des Pyrénées-Occidentales" has appeared in the *Boletin de la Sociedad Aragonesa de Ciencias Naturales*, and is chiefly concerned with the retention in the Cretaceous system of beds placed by Prof. Termier as Silurian, and the extension of the Cretaceous zones in areas recently mapped as Palæozoic. A close acquaintance with the strata would be required for the appreciation of the merits of the author's controversy with M. Léon Bertrand, or the older one as to the age of the overfolds in the Pyrenees, and of the alleged Carboniferous granite of Gavarnie ("La nueva Geologia en los Pirineas de Aragón," *Mem. del primer Congreso de Naturalistas Espanoles*, 1909).

A summary of temperature, rainfall, and bright sunshine for the year 1915, obtained from the records of the fifty-two weeks ending January 1 of the present year, has been given by the Meteorological Office. The mean temperature for the year is in fair agreement with the average over the whole of the United Kingdom, but is generally slightly deficient, the greatest deficiency amounting to 1° in the east of Scotland and to nearly that amount in the west of Scotland. The rainfall for the year was in excess of the average in all the eastern districts, the amounts ranging from 130 per cent. of the average in the south-east of England, where commonly of late the rains have been abnormally heavy, and 123 per cent. in the east of England to 107 per cent. in the north-east of England. In the western districts the rainfall was more variable, ranging from 111 per cent. of the average in the south-west of England and 105 per cent. in the south of Ireland, to 80 per cent. in the west of Scotland, which has the greatest deficiency. In the north of Scotland the rainfall was 82 per cent. of the average, and in the Channel Islands it was 114 per cent. of the normal. The number of rainy days was less than the average except in the east of England and in the south of Ireland; in the south-east of England, where the greatest excess of rain was experienced, the rainy days were fourteen fewer than the normal. The duration of sunshine differed very little from the average, except in the north-west of England, where the total for the year had the average excess of half an hour per day.

The seventh volume of the Journal of the Municipal School of Technology, Manchester, records the research work published by the staff and students during 1913. It extends to 200 pages, and includes important papers by Mr. W. C. Popplewell on the properties of reinforced concrete, by Prof. Knecht and by Mr. Hubner on dyeing and its history, by Prof. Miles Walker on the training of the engineer, and eleven other papers mainly on technical chemistry. In addition to the scientific interest provided in these records there is a preparatory note of a page and a half which tells something about the work of the school, and will serve as a guide to the authorities of many schools who have not yet realised what is the great need of the country in the matter of technical education. The first place in the note is given to the three or four hundred university students who have passed the matriculation examination and are taking a three years' course in order to graduate. It appears that the school cannot turn out graduates fast enough to meet the industrial demand for such men. As this is also the experience of the Central Technical College in London, it is a serious question whether those technical schools which complain that the industries show no appreciation of their students are turning out properly qualified men, or only men who, to make up for the deficiencies of their early training, obtain a smattering of scientific knowledge by attending evening classes when tired out with their day's work?

Costing, in round figures, $1\frac{3}{4}$ million pounds, and comprising 880,000 cubic yards of cyclopean concrete masonry, the Kensico Dam, one of the principal features of the Catskill water supply system of New York City, has just been completed. The event is the more notable for the fact that the work has been carried out in the relatively short space of four and a half years, or three years less than the contract time—a remarkable achievement in days when experience is usually of the reverse kind. The Kensico Reservoir, destined to provide storage capacity for two and a half months' supply, is formed in the valley of the Bronx River, on the east side of the Hudson, thirty miles north of New York City. The dam takes the place of an earlier structure of much less height, enclosing a correspondingly smaller area; the increase in effective height is actually 110 ft., and in area, 3200 acres. According to the *Engineer* of January 7, the preparation of the foundation involved the removal of $2\frac{1}{2}$ million cubic yards of earth and rock, and, in one place, the rock had to be drilled and blasted to a depth of 65 ft. The work of laying the masonry reached the record figure of 84,450 cubic yards in a single month. Electric power plant was extensively employed, and a special installation was laid down for the purpose. For the measurement of the water drawn from the reservoir, there is provided a very large Venturi meter, 410 ft. long, formed in reinforced concrete, with bronze throat castings and piezometer ring. The protection of the surrounding area has been effected by planting the banks with *Arbor vitæ*, with pine and spruce seedlings in the rear, which will also serve the purpose of minimising the evil of drifting deciduous leaves.

WE are asked by Mr. J. Reid Moir to state that the arrangement of the collection of flint implements which, as announced last week (p. 572), has recently come into the possession of the Ipswich Museum, is entrusted to the curator, Mr. Frank Woolnough, and himself, and not to Mr. J. Reid Moir alone.

OUR ASTRONOMICAL COLUMN.

COMET 1915*e* (TAYLOR).—The following is a continuation of the ephemeris based on the orbit given last week:—

		h.	m.	s.	°	′			h.	m.	s.	°	′
Jan.	28	5	13	48	+19	8·1	Feb.	3	5	19	44	+21	29·5
	30		15	35	19	56·3		5		22	6	22	14·4
Feb.	1		17	34	20	43·4		7		24	40	22	58·2

It will be seen that the comet is moving on the line 15 Orionis–114 Tauri, and should be close to the latter on February 5. According to an observation made at the Hill Observatory on January 22, the ephemeris required corrections of −22 sec. in R.A., and −15′ in declination. The former has more than doubled since January 13, but the latter has remained practically unchanged.

THE NOTATION OF STAR COLOURS.—The combination of photographic and photovisual photometry, as well as more direct methods, provide a measure of the colour index which can be expressed as a sum of terms due to the spectrum of the star, its absolute magnitude, and its distance. To break up into defined groups the numerical colour indices Prof. F. H. Seares proposes colour classes corresponding to the means for the typical spectra of classes B, A, F, etc., with the designations *b, a, f,* etc. By making certain numerical definitions, the difference between the colour symbols and the spectrum symbols expresses the abnormality of the individual as regards luminosity and distance. Such colour symbols may be termed "hypothetical spectra."

SATURN'S RINGS.—Speculation is only beginning to become again active in regard to the ring system of Saturn since Keeler elucidated the mystery of its constitution. Thus there is the question of its origin, perhaps indeterminate, as it admits of a number of almost equally plausible suggestions. A more limited problem concerns the subdivisions. What is the meaning of the manifold "rings"? In bringing forward this problem, Dr. Lowell (Lowell Observatory Bull., No. 68) suggests, and advances proof in the form of filar micrometer measures of their dimensions, that many of the newly-detected divisions on ring B are due to the perturbative action of Mimas (the nearest of Saturn's satellites, half the diameter and half as far away as the moon is from the earth). The proof offered is the fact that most of the new divisions occur where a particle of the ring would have a period of revolution commensurate with that of Mimas in some simple ratio New divisions are situated 1/4, 3/7, 4/7, 1/3 − and 1/3 + way out from the inner edge of ring B respectively, and the corresponding periods would be 3/8, 2/5, 3/7, 4/9, and 5/11 that of Mimas. Dr. Lowell some time ago directed attention to simple commensurabilities among planetary periods (NATURE, July 24, 1913). The question naturally arises whether Mimas is making new satellites for Saturn out of the meteoritic material of ring B.

STEREOSCOPIC MEASUREMENT OF PROPER MOTIONS.—M. Comas Solà recently gave an example of the use of an ordinary stereoscope for the detection of proper motions (NATURE, August 26, 1915). Apart from Prof. Barnard's criticism of the results, this simple instrument obviously cannot yield quantitative information. This deficiency, however, appears to be removed by the addition of an arrangement M. Comas Solà has named a stereogoniometer (*Comptes rendus,* clxii., p. 39). This is a device by which the two properly oriented plates under comparison may be simultaneously rotated through a measured angle. As the plates rotate so the apparent "relief" of the proper motion star alters, the position of maximum relief giving the direction of the star's movement. It may be pardonable to add that the obvious experiment is very interesting.

PROF. GUIDO BACCELLI.

WE are indebted to the *British Medical Journal* for the following particulars of the career and work of Prof. G. Baccelli, whose death was announced in NATURE of January 13. Prof. Baccelli was born in Rome on November 25, 1832, and took his doctor's degree in the university of his native city in 1852. Four years later he was appointed to the chair of forensic medicine in the University of Rome, but resigned his position after two years, and devoted himself to the study of morbid anatomy. When a chair of that subject was founded in the University Baccelli was appointed the first professor. In that capacity he had a great influence in turning the minds of his pupils in the direction of modern scientific methods. In 1863 he was appointed lecturer on clinical medicine, and in 1870, when Rome became the capital of Italy, he was appointed professor of clinical medicine, a post which he continued to hold until the end of his life. In 1875 he entered the Italian Parliament as one of the deputies for Rome, and soon took a leading place as a politician. In 1881 he became Minister of Public Instruction, and held that portfolio four times in all, doing great service to his country by the promotion of far-reaching reforms, both of primary and university education. To him Rome chiefly owes the Policlinico, a magnificent pile of buildings, fully equipped for the study of disease. He was also once Minister of Agriculture, Industry, and Commerce. He was prominent as a sanitary reformer, and was at one time President of the Board of Health. He took an active part in the sanitary improvement of the Campagna; for his efforts in that direction he received the thanks of the Italian Parliament. He was a Senator of Italy. Prof. Baccelli was president of the eleventh International Congress of Medicine held in Rome in 1894, and at that congress he made a powerful appeal for the introduction of Latin as a universal spoken language which could be understood all over the world. A little modification in the teaching of Latin in schools as a spoken and not merely as a dead language would give all the advantage of the attempts which have been made to construct a universal language, while it would not disorganise the present curriculum and would render available for general use all the stores of wisdom and knowledge contained in Latin books and at present unavailable for common use. Besides a monograph on Roman malaria, published in 1878, in which his views on the sanitary improvement of the Campagna were embodied, Prof. Baccelli was the author of many